

REMARKS

In the Office Action, the Examiner indicated that claims 1-13, 15, 16, 18 and 19 are pending in the application and that all of the pending claims are rejected.

Rejection Under 35 U.S.C. §103

On page 2 of the Office Action, the Examiner has rejected claims 1-13, 15-16, and 18-19 under 35 U.S.C. §103(a) as being unpatentable over Scott et al. (U.S. Patent No. 6,385,235) in view of Luscher, Jr. (U.S. Patent No. 5,600,551).

To support a rejection under 35 U.S.C. §103, a reason, suggestion, or motivation to lead an inventor to combine two or more references must be found. *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 37 U.S.P.Q.2d 1627, 1629 (Fed.Cir. 1996). The Examiner has not met his burden in establishing a reason, suggestion, or motivation for combining the cited references, as discussed below.

The Present Invention

The present invention relates to an interface utilizing existing clock signals from a driver circuit, such as a DSP, to charge capacitors that are normally used for capacitive coupling of digital data across a high voltage isolation barrier. A clock regeneration circuit is included to regenerate the clock signals used to charge the capacitors, thereby effectively preserving the integrity of the clock so that it can be used, for example, to generate a timing event.

Using relatively small capacitors (e.g., capacitors in the range between 10 pF and 500 pF, and preferably at 100 pF) a charge pump is formed to generate power to the

interface at all times. Thus, the interface always has a steady source of power available for use, including during the on-hook state, for powering circuitry that can detect, modulate, and transmit on-hook signals across the capacitive interface, and also has a clock available for timing events as described above.

The claimed invention includes circuitry that doubles the voltage of the clock signal coming from the DSP, thereby obtaining more power for use by a data access arrangement (DAA) coupled to the interface and, therefore to the DSP. Further, the interface circuit is a fully differential circuit, thereby eliminating the need to keep the impedance across the capacitive coupling low, as is required when using a pseudo-differential interface circuit.

Scott et al., U.S. Patent No. 6,385,235

U.S. Patent No. 6,385,235 to Scott et al. teaches an isolation system suitable for use in telephony. In a preferred embodiment of Scott, a capacitive isolation barrier across which a digital signal is communicated is provided. The isolation barrier comprises two high voltage capacitors. In a preferred embodiment, a clock recovery circuit is connected to the isolation capacitors. The clock recovery circuit recovers a clock signal from the digital data driven across the isolation barrier and provides a synchronized clock signal to the various circuits in the received system.

Luscher, Jr., U.S. Patent No. 5,600,551

U.S. Patent No. 5,600,551 to Luscher, Jr. teaches a voltage multiplier and capacitive isolation power supply using capacitors, diodes and first and second clock signals that are out of phase with respect to each other. When the first clock signal is high

and the second clock signal is low, a capacitor in a first stage transfers charge to a capacitor in a second stage. When the first clock signal is low and the second clock signal is high, the capacitor in the second stage transfers charge to an output capacitor, and the capacitor in the first stage is recharged via a feedback diode between a capacitor connected to a ground potential and the capacitor in the first stage. Additionally, the capacitors in each of the stages provide an isolation function for the power supply.

The Claimed Invention Is Not Taught or Suggested by Scott or Luscher, Either Alone or in Combination

As noted above, to support a rejection under 35 U.S.C. §103, the cited references must suggest a reason, suggestion, or motivation to lead an inventor to combine two or more references must be found. None of the references cited by the Examiner teach or suggest a driver circuit, such as a charge pump, which doubles the voltage of a clock signal provided by the driver circuit to thus increase the voltage available for use by a DAA and regenerates the clock signal so that it is also available to perform its clocking function.

The mere finding of a teaching of doubling the voltage of a clock signal is not, in itself, enough to suggest the present claimed invention. For the Examiner's rejection to be appropriate, there must be some suggestion in Scott of doubling the voltage of the clock signal, albeit in a different manner than done by the claimed invention; only then is it appropriate to substitute the doubling method alleged to be taught by Luscher with whatever doubling method is taught in Scott.

Applicant was motivated to provide the voltage doubling because they were using a three volt process and needed to have the higher voltage to be used by the DAA coupled to the interface and, therefore, to the DSP. The Examiner provides no evidence of motivation

in the Scott reference indicating the desirability, need, etc. for doubling the clock voltage. Without such a suggestion, the mere existence of a patent allegedly teaching doubling the voltage of a clock signal does not rise to the level required under 35 U.S.C. § 103 for a finding of obviousness. The Examiner has merely used impermissible hindsight to make the present rejection.

The claims of the present invention, as amended, positively recite these novel and distinguishing features (claim 1, "A fully differential interface circuit ... having a clock generator generating a clock signal ... a clock regeneration element ... said clock regeneration element regenerating a clock signal that is essentially identical to the clock signal generated by said clock generator"; claim 7, "A method of providing power to a data access arrangement in an interface circuit ... said method comprising the steps of ... generating a power signal ... across said charge pump by inputting the output of said clock generator to said charge pump ... regenerating a clock signal essentially identical to said output of said clock generator"; claim 8, "A fully differential interface circuit ... a driver circuit ... said driver circuit including a clock generator generating a clock signal ... a clock regeneration element ... said clock regeneration element regenerating a clock signal that is essentially identical to the clock signal generated by the clock generator"). Since these claimed elements are neither taught nor suggested by either Scott or Luscher, it is submitted that the claims, as amended, patentably define over the cited references.

The present invention patentably defines over the cited references and is thus in condition for allowance. The Examiner is respectfully requested to reconsider and withdraw his rejection of the claims under 35 U.S.C. §103.

Conclusion

The claims, as amended, patentably define over the prior art cited by the Examiner in rejecting the claims. Accordingly, reconsideration of the claims and an early Notice of Allowance are earnestly solicited.

Respectfully submitted,

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